What is claimed is:

1. A wireless communication device, comprising:

a RFID chip; and

a sinusoidal-shaped wave antenna comprised of at least one conductor that is curved in at least one position at an angle less than 180 degrees to form at least two different sections;

said sinusoidal-shaped wave antenna coupled to said RFID chip.

2. The device of claim 1, wherein said sinusoidal-shaped wave antenna is comprised from the group consisting of a monopole sinusoidal-shaped conductor and a dipole sinusoidal-shaped conductor.

3. The device of claim 1, wherein said at least one sinusoidal-shaped conductor is constructed out of a material comprised from the group consisting of copper, brass, steel, zinc-plated steel, spring brass, and brass coated spring steel

4. The device of claim 1, wherein the amplitude of said at least one sinusoidal-shaped conductor is the same over the entire length of said sinusoidal-shaped conductor.

5. The device of claim 1, wherein the amplitude of said at least one sinusoidal-shaped conductor is different in at least two different portions of said sinusoidal-shaped conductor.

6. The device of claim 1, wherein said at least one sinusoidal-shaped conductor is coated with a non-conductive material.

7. The device of claim 1, wherein said sinusoidal-shaped wave antenna is designed to operate at a frequency comprised from the group consisting of around about 915 MHz and around about 2.45 GHz.

8. The device of claim 1, wherein said at least one sinusoidal-shaped conductor is comprised of a first section having a first length to form a first sinusoidal-shaped wave antenna designed to operate at a first operating frequency and a second section having a second length to form a second sinusoidal-shaped wave antenna designed to operate at a second operating frequency.

9. The device of claim 8, wherein said first section is coupled to said RFID chip, and said second section is coupled to said first section.

10. The device of claim 8, wherein said first section has a first amplitude and said second section has a second amplitude different than said first amplitude.

11. The device of claim 1, wherein said at least one sinusoidal-shaped conductor is comprised out of a first sinusoidal-shaped conductor and a second sinusoidal-shaped conductor wherein both said first sinusoidal-shaped conductor and a second sinusoidal-shaped conductor are coupled to said RFID chip to form a dipole sinusoidal-shaped wave antenna.

12. The device of claim 11, wherein said first sinusoidal-shaped conductor has a first amplitude and said second section has a second amplitude different than said first amplitude.

13. The device of claim 11, wherein said first sinusoidal-shaped conductor has a first length and said second sinusoidal-shaped conductor has a second length different than said first length.

14. The device of claim 1, further comprising a resonating ring coupled to said sinusoidal-shaped wave antenna wherein said sinusoidal-shaped wave antenna operates at a first operating frequency and said resonating ring forms a second antenna that operates at a second operating frequency.

15. The device of claim 14, wherein said resonating ring is capacitively coupled to said sinusoidal-shaped wave antenna.

16. The device of claim 14, wherein said resonating ring is additionally coupled to said RFID chip so that a force placed on said sinusoidal-shaped wave antenna will be placed in whole or in part on said resonating ring to relieve mechanical stress on said RFID chip.

17. The device of claim 1, wherein said at least one conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

18. The device of claim 1, wherein said at least one conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

19. An apparatus, comprising:

a wireless communication device coupled to a sinusoidal-shaped wave antenna comprised of at least one sinusoidal-shaped conductor that operates at a first operating frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire to detect environmental information inside said tire and wirelessly communicate the environmental information.

20. The apparatus of claim 19, wherein said environmental information is comprised from the group consisting of pressure inside said tire and temperature inside said tire.

21. The apparatus of claim 19, wherein said tire comprises:

an outer surface, comprising:

a circular-shaped tread surface having a left outer side and a right outer side and an orifice; and

said left outer side and said right outer side each fold down at an angle substantially perpendicular to said tread surface to form a left outer wall and a right outer wall substantially perpendicular to said tread surface and to form a left inner wall and a right inner wall attached substantially

perpendicular to a internal wall on the opposite side of said tread surface; and

wherein said wireless communication device is attached to a wall inside said tire comprised from the group consisting of said left inner wall, said right inner wall, and said internal wall.

22. The apparatus of claim 19, wherein said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

23. The apparatus of claim 22, wherein said sinusoidal-shaped wave antenna operates at a second operating frequency when said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

24. The apparatus of claim 19, further comprising a resonating ring coupled to said sinusoidal-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

25. The apparatus of claim 21, wherein said resonating ring is capacitively coupled to said sinusoidal-shaped wave antenna.

26. The apparatus of claim 25, wherein said resonating ring is additionally coupled to said wireless communication device so that the pressure placed on said sinusoidal-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

27. The apparatus of claim 21, wherein said tread surface is comprised out of rubber having a thickness wherein said sinusoidal-shaped wave antenna is contained inside said rubber.

28. The apparatus of claim 21, wherein said tread surface is comprised out of rubber having a thickness wherein said wireless communication device is contained inside said rubber.

29. The apparatus of claim 21, wherein said sinusoidal-shaped wave antenna is contained inside said rubber.

30. The apparatus of claim 28, wherein said tread surface contains an inner steel belt inside said rubber wherein said sinusoidal-shaped wave antenna is coupled to said inner steel belt.

31. The apparatus of claim 30, wherein said coupling of said sinusoidal-shaped wave antenna to said inner steel belt is comprised from the group consisting of direct coupling, capacitive coupling, and reactive coupling.

32. The apparatus of claim 31, wherein said sinusoidal-shaped wave antenna is contained inside said tread surface.

33. The apparatus of claim 31, wherein said wireless communication device is contained inside said tread surface.

34. The apparatus of claim 33, wherein said sinusoidal-shaped wave antenna is contained inside said tread surface.

35. The apparatus of claim 19, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as environmental information.

36. The apparatus of claim 19, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as environmental information.

37. The apparatus of claim 36, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure and the temperature inside said tire as environmental information.

38. The apparatus of claim 19, wherein said at least one sinusoidal-shaped conductor has a peak that is thicker than the other portions of said at least one

conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

39. The device of claim 19, wherein said at least one sinusoidal-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

40. A system for wirelessly communicating information about a tire, comprising:

an interrogation reader;

a wireless communication device coupled to a sinusoidal-shaped wave antenna comprised of at least one sinusoidal-shaped conductor that operates at a first frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire to detect environmental information inside said tire and wirelessly communicate the environmental information to said interrogation reader.

41. The system of claim 40, wherein said information is environmental information comprised from the group consisting of pressure inside said tire and temperature inside said tire.

42. The system of claim 40, wherein said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

43. The system of claim 42, wherein said sinusoidal-shaped wave antenna operates at a operating frequency that is compatible with said interrogation reader when said sinusoidal-shaped wave antenna expands when said tire is placed under a threshold pressure.

44. The system of claim 42, wherein said sinusoidal-shaped wave antenna operates at a second operating frequency when said sinusoidal-shaped wave antenna expands when said tire is placed under pressure.

45. The system of claim 40, further comprising a resonating ring coupled to said sinusoidal-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

46. The system of claim 45, wherein said resonating ring is capacitively coupled to said sinusoidal-shaped wave antenna.

47. The system of claim 46, wherein said resonating ring is additionally coupled to said wireless communication device so that pressure placed on said sinusoidal-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

48. The system of claim 40, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can

wirelessly communicate the pressure inside said tire as environmental information to said interrogation reader.

49. The system of claim 40, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as environmental information to said interrogation reader.

50. The system of claim 49, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure and the temperature inside said tire as environmental information to said interrogation reader.

51. The system of claim 40, wherein said interrogation reader communicates the environmental information to a reporting system.

52. The system of claim 51, wherein said reporting system further communicates the environmental information to a remote system.

53. The system of claim 40, wherein said interrogation reader communicates the environmental information to a remote system.

54. The system of claim 40, wherein said at least one sinusoidal-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

55. The system of claim 40, wherein said at least one sinusoidal-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said sinusoidal-shaped wave antenna.

56. A method for wirelessly communicating with a tire, comprising the steps of:

placing a wireless communication device coupled to a sinusoidal-shaped wave antenna comprised out at least one sinusoidal-shaped conductor that operates at a first operating frequency;

placing an interrogation reader proximate to said tire; and

receiving information wirelessly at a first frequency from said wireless communication device inside said tire.

57. The method of claim 56, further comprising the step of sending a wireless communication to said wireless communication device before said step of receiving information.

58. The method of claim 56, wherein said information is comprised of environmental information about said tire.

59. The method of claim 58, wherein said environmental information is comprised from the group consisting of temperature inside said tire and pressure inside said tire.

60. The method of claim 58, further comprising the step of sensing the pressure inside said tire and including the pressure inside said tire in said information.

61. The method of claim 58, further comprising the step of sensing the temperature inside said tire and including the temperature inside said tire in said information.

62. The method of claim 56, further comprising the step of placing said sinusoidal-shaped wave antenna under pressure by placing said tire under pressure.

63. The method of claim 62, further comprising the step of receiving information at a second frequency through wireless communication from said wireless communication device when said tire is placed under a threshold pressure.

64. The method of claim 56, further comprising the step of coupling a resonating ring to said sinusoidal-shaped wave antenna to form a second antenna that operates at a second frequency.

65. The method of claim 64, further comprising the step of coupling said resonating ring to said wireless communication device so that pressure placed on said sinusoidal-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

66. A method of manufacturing a sinusoidal-shaped wave antenna, comprising the steps of:

passing a conducting foil through a first cog and a second cog each having a sinusoidal-shaped periphery and placed in a vertical plane with respect to each other wherein said sinusoidal-shaped periphery in each of said first cog and said second cog substantially interlock with each other as said first cog rotates clockwise and said second cog rotates counterclockwise; and

placing alternating curves in said conducting foil when said conducting foil is passed through said first cog and said second cog.

67. A method of manufacturing a wireless communication device that is coupled to a sinusoidal-shaped wave antenna, comprising the steps of:

passing a conducting foil through a first cog and a second cog each having a sinusoidal-shaped periphery and placed in a vertical plane with respect to each other wherein each of said first cog and said second cog substantially interlock with each other as said first cog rotates clockwise and said second cog rotates counterclockwise;

placing alternating curves in said conducting foil when said conducting foil passes through said first cog and said second cogs\ to form a conducting foil having a plurality of curves that form a plurality of peaks separated by valleys; and

soldering wireless communication chips individually to each side of one of said plurality of peaks using solder.

68. The method of claim 67, further comprising the step of tinning each side of said plurality of peaks before said step of soldering.

69. The method of claim 67, further comprising the step of re-flow soldering said wireless communication chips with hot gas after said step of soldering.

70. The method of claim 67, further comprising the step of cleaning away said excess solder away after said step of soldering.

71. The method of claim 67, further comprising removing a short formed across each side of said plurality of peaks after said step of soldering.

72. The method of claim 67, further comprising the step of encapsulating said wireless communication chip after said step of soldering.

73. The method of claim 67, further comprising the step of winding said conductive foil with said wireless communication chips soldered to said conductive foil onto a reel.

74. The method of claim 73, further comprising the step of cutting said winding of conductive foil said wireless communication chips soldered to said conductive foil to form individual wireless communication devices.

75. The method of claim 74, further comprising the step of attaching said individual wireless communication devices to tires.

76. The method of claim 68, further comprising the steps of:

re-flow soldering said wireless communication chips with hot gas after said step of soldering;

cleaning away said excess solder away after said step of soldering; and

removing a short formed across each side of said plurality of peaks after said step of soldering;

wherein said steps of reflow-soldering, cleaning away, and removing are performed after said step of soldering.

77. A method of testing a wireless communication device that is attached to a tire during the manufacture of the tire, comprising:

attaching a wireless communication device that is coupled to a sinusoidal-shaped wave antenna comprised of at least one sinusoidal-shaped conductor that operates at a first frequency to the inside of a tire;

pressurizing said tire; and

communicating with said wireless communication device at the first frequency to determine if said wireless communication device is operating properly.

78. The method of claim 77, wherein said step of communicating further comprises communicating with said wireless communication device at the first frequency to obtain the pressure inside the tire.

79. The method of claim 78, further comprising comparing the pressure inside the tire received from said wireless communication device to a pressure measurement from a pressure measuring device attached to a needle stem on said tire.

80. A wireless communication device, comprising:

a RFID chip; and

a semi-circle-shaped wave antenna comprised of at least one conductor that is curved in at least one position at an angle less than 180 degrees to form at least two different sections;

said semi-circle-shaped wave antenna coupled to said RFID chip.

81. The device of claim 80, wherein said semi-circle-shaped wave antenna is comprised from the group consisting of a monopole semi-circle-shaped conductor and a dipole semi-circle-shaped conductor.

82. The device of claim 80, wherein said at least one semi-circle-shaped conductor is constructed out of a material comprised from the group consisting of copper, brass, steel, zinc-plated steel, spring brass, and brass coated spring steel

83. The device of claim 80, wherein the amplitude of said at least one semi-circle-shaped conductor is the same over the entire length of said semi-circle-shaped conductor.

84. The device of claim 80, wherein the amplitude of said at least one semi-circle-shaped conductor is different in at least two different portions of said semi-circle-shaped conductor.

85. The device of claim 80, wherein said at least one semi-circle-shaped conductor is coated with a non-conductive material.

86. The device of claim 80, wherein said semi-circle-shaped wave antenna is designed to operate at a frequency comprised from the group consisting of around about 915 MHz and around about 2.45 GHz.

87. The device of claim 80, wherein said at least one semi-circle-shaped conductor is comprised of a first section having a first length to form a first semi-circle-shaped wave antenna designed to operate at a first operating frequency and a second section having a second length to form a second semi-circle-shaped wave antenna designed to operate at a second operating frequency.

88. The device of claim 87, wherein said first section is coupled to said RFID chip, and said second section is coupled to said first section.

89. The device of claim 87, wherein said first section has a first amplitude and said second section has a second amplitude different than said first amplitude.

90. The device of claim 80, wherein said at least one semi-circle-shaped conductor is comprised out of a first semi-circle-shaped conductor and a second semi-circle-shaped conductor wherein both said first semi-circle-shaped conductor and a second semi-circle-shaped conductor are coupled to said RFID chip to form a dipole semi-circle-shaped wave antenna.

91. The device of claim 90, wherein said first semi-circle-shaped conductor has a first amplitude and said second section has a second amplitude different than said first amplitude.

92. The device of claim 90, wherein said first semi-circle-shaped conductor has a first length and said second semi-circle-shaped conductor has a second length different than said first length.

93. The device of claim 80, further comprising a resonating ring coupled to said semi-circle-shaped wave antenna wherein said semi-circle-shaped wave antenna operates at a first operating frequency and said resonating ring forms a second antenna that operates at a second operating frequency.

94. The device of claim 93, wherein said resonating ring is capacitively coupled to said semi-circle-shaped wave antenna.

95. The device of claim 93, wherein said resonating ring is additionally coupled to said RFID chip so that a force placed on said semi-circle-shaped wave antenna will be placed in whole or in part on said resonating ring to relieve mechanical stress on said RFID chip.

96. The device of claim 80, wherein said at least one conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

97. The device of claim 80, wherein said at least one conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

98. An apparatus, comprising:

a wireless communication device coupled to a semi-circle-shaped wave antenna comprised of at least one semi-circle-shaped conductor that operates at a first operating frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire to detect environmental information inside said tire and wirelessly communicate the environmental information.

99. The apparatus of claim 98, wherein said environmental information is comprised from the group consisting of pressure inside said tire and temperature inside said tire.

100. The apparatus of claim 98, wherein said tire comprises:

an outer surface, comprising:

a circular-shaped tread surface having a left outer side and a right outer side and an orifice; and

said left outer side and said right outer side each fold down at an angle substantially perpendicular to said tread surface to form a left outer wall and a right outer wall substantially perpendicular to said tread surface and to form a left inner wall and a right inner wall attached substantially perpendicular to a internal wall on the opposite side of said tread surface; and

wherein said wireless communication device is attached to a wall inside said tire comprised from the group consisting of said left inner wall, said right inner wall, and said internal wall.

101. The apparatus of claim 98, wherein said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

102. The apparatus of claim 101, wherein said semi-circle-shaped wave antenna operates at a second operating frequency when said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

103. The apparatus of claim 98, further comprising a resonating ring coupled to said semi-circle-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

104. The apparatus of claim 100, wherein said resonating ring is capacitively coupled to said semi-circle-shaped wave antenna.

105. The apparatus of claim 104, wherein said resonating ring is additionally coupled to said wireless communication device so that the pressure placed on said semi-circle-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

106. The apparatus of claim 100, wherein said tread surface is comprised out of rubber having a thickness wherein said semi-circle-shaped wave antenna is contained inside said rubber.

107. The apparatus of claim 100, wherein said tread surface is comprised out of rubber having a thickness wherein said wireless communication device is contained inside said rubber.

108. The apparatus of claim 21001, wherein said semi-circle-shaped wave antenna is contained inside said rubber.

109. The apparatus of claim 107, wherein said tread surface contains an inner steel belt inside said rubber wherein said semi-circle-shaped wave antenna is coupled to said inner steel belt.

110. The apparatus of claim 109, wherein said coupling of said semi-circle-shaped wave antenna to said inner steel belt is comprised from the group consisting of direct coupling, capacitive coupling, and reactive coupling.

111. The apparatus of claim 110, wherein said semi-circle-shaped wave antenna is contained inside said tread surface.

112. The apparatus of claim 110, wherein said wireless communication device is contained inside said tread surface.

113. The apparatus of claim 112, wherein said semi-circle-shaped wave antenna is contained inside said tread surface.

114. The apparatus of claim 98, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as environmental information.

115. The apparatus of claim 98, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the

temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as environmental information.

116. The apparatus of claim 115, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure and the temperature inside said tire as environmental information.

117. The apparatus of claim 98, wherein said at least one semi-circle-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

118. The device of claim 98, wherein said at least one semi-circle-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

119. A system for wirelessly communicating information about a tire, comprising:

an interrogation reader;

a wireless communication device coupled to a semi-circle-shaped wave antenna comprised of at least one semi-circle-shaped conductor that operates at a first frequency; and

a tire wherein said wireless communication device is mounted to the inside of said tire to detect environmental information inside said tire and wirelessly communicate the environmental information to said interrogation reader.

120. The system of claim 119, wherein said information is environmental information comprised from the group consisting of pressure inside said tire and temperature inside said tire.

121. The system of claim 119, wherein said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

122. The system of claim 121, wherein said semi-circle-shaped wave antenna operates at a operating frequency that is compatible with said interrogation reader when said semi-circle-shaped wave antenna expands when said tire is placed under a threshold pressure.

123. The system of claim 121, wherein said semi-circle-shaped wave antenna operates at a second operating frequency when said semi-circle-shaped wave antenna expands when said tire is placed under pressure.

124. The system of claim 119, further comprising a resonating ring coupled to said semi-circle-shaped wave antenna wherein said resonating ring forms a second antenna that operates at a second operating frequency.

125. The system of claim 124, wherein said resonating ring is capacitively coupled to said semi-circle-shaped wave antenna.

126. The system of claim 125, wherein said resonating ring is additionally coupled to said wireless communication device so that pressure placed on said semi-circle-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

127. The system of claim 119, wherein said wireless communication device is coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can wirelessly communicate the pressure inside said tire as environmental information to said interrogation reader.

128. The system of claim 119, wherein said wireless communication device is coupled to a temperature sensor contained inside said tire that measures the temperature inside said tire so that said wireless communication device can wirelessly communicate the temperature inside said tire as environmental information to said interrogation reader.

129. The system of claim 128, wherein said wireless communication device is also coupled to a pressure sensor contained inside said tire that measures the pressure inside said tire so that said wireless communication device can

wirelessly communicate the pressure and the temperature inside said tire as environmental information to said interrogation reader.

130. The system of claim 119, wherein said interrogation reader communicates the environmental information to a reporting system.

131. The system of claim 130, wherein said reporting system further communicates the environmental information to a remote system.

132. The system of claim 119, wherein said interrogation reader communicates the environmental information to a remote system.

133. The system of claim 119, wherein said at least one semi-circle-shaped conductor has a peak that is thicker than the other portions of said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

134. The system of claim 119, wherein said at least one semi-circle-shaped conductor is heated to reduce the stress in said at least one conductor to reduce the susceptibility of breakage of said semi-circle-shaped wave antenna.

135. A method for wirelessly communicating with a tire, comprising the steps of:

placing a wireless communication device coupled to a semi-circle-shaped wave antenna comprised out at least one semi-circle-shaped conductor that operates at a first operating frequency;

placing an interrogation reader proximate to said tire; and

receiving information wirelessly at a first frequency from said wireless communication device inside said tire.

136. The method of claim 135, further comprising the step of sending a wireless communication to said wireless communication device before said step of receiving information.

137. The method of claim 135, wherein said information is comprised of environmental information about said tire.

138. The method of claim 137, wherein said environmental information is comprised from the group consisting of temperature inside said tire and pressure inside said tire.

139. The method of claim 137, further comprising the step of sensing the pressure inside said tire and including the pressure inside said tire in said information.

140. The method of claim 137, further comprising the step of sensing the temperature inside said tire and including the temperature inside said tire in said information.

141. The method of claim 135, further comprising the step of placing said semi-circle-shaped wave antenna under pressure by placing said tire under pressure.

142. The method of claim 141, further comprising the step of receiving information at a second frequency through wireless communication from said wireless communication device when said tire is placed under a threshold pressure.

143. The method of claim 135, further comprising the step of coupling a resonating ring to said semi-circle-shaped wave antenna to form a second antenna that operates at a second frequency.

144. The method of claim 143, further comprising the step of coupling said resonating ring to said wireless communication device so that pressure placed on said semi-circle-shaped wave antenna when inside said tire will be placed in whole or in part on said resonating ring to relieve mechanical stress on said wireless communication device.

145. A method of manufacturing a semi-circle-shaped wave antenna, comprising the steps of:

passing a conducting foil through a first cog and a second cog each having a semi-circle-shaped periphery and placed in a vertical plane with respect to each other wherein said semi-circle-shaped periphery in each of said first cog and said second cog substantially interlock with each other as

said first cog rotates clockwise and said second cog rotates counterclockwise; and

placing alternating curves in said conducting foil when said conducting foil is passed through said first cog and said second cog.

146. A method of manufacturing a wireless communication device that is coupled to a semi-circle-shaped wave antenna, comprising the steps of:

passing a conducting foil through a first cog and a second cog each having a semi-circle-shaped periphery and placed in a vertical plane with respect to each other wherein each of said first cog and said second cog substantially interlock with each other as said first cog rotates clockwise and said second cog rotates counterclockwise;

placing alternating curves in said conducting foil when said conducting foil passes through said first cog and said second cogs\ to form a conducting foil having a plurality of curves that form a plurality of peaks separated by valleys; and

soldering wireless communication chips individually to each side of one of said plurality of peaks using solder.

147. The method of claim 146, further comprising the step of tinning each side of said plurality of peaks before said step of soldering.

148. The method of claim 146, further comprising the step of re-flow soldering said wireless communication chips with hot gas after said step of soldering.

149. The method of claim 146, further comprising the step of cleaning away said excess solder away after said step of soldering.

150. The method of claim 146, further comprising removing a short formed across each side of said plurality of peaks after said step of soldering.

151. The method of claim 146, further comprising the step of encapsulating said wireless communication chip after said step of soldering.

152. The method of claim 146, further comprising the step of winding said conductive foil with said wireless communication chips soldered to said conductive foil onto a reel.

153. The method of claim 152, further comprising the step of cutting said winding of conductive foil said wireless communication chips soldered to said conductive foil to form individual wireless communication devices.

154. The method of claim 153, further comprising the step of attaching said individual wireless communication devices to tires.

155. The method of claim 147, further comprising the steps of:

re-flow soldering said wireless communication chips with hot gas after said step of soldering;

cleaning away said excess solder away after said step of soldering; and

removing a short formed across each side of said plurality of peaks after said step of soldering;

wherein said steps of reflow-soldering, cleaning away, and removing are performed after said step of soldering.

156. A method of testing a wireless communication device that is attached to a tire during the manufacture of the tire, comprising:

attaching a wireless communication device that is coupled to a semi-circle-shaped wave antenna comprised of at least one semi-circle-shaped conductor that operates at a first frequency to the inside of a tire;

pressurizing said tire; and

communicating with said wireless communication device at the first frequency to determine if said wireless communication device is operating properly.

157. The method of claim 156, wherein said step of communicating further comprises communicating with said wireless communication device at the first frequency to obtain the pressure inside the tire.

158. The method of claim 157, further comprising comparing the pressure inside the tire received from said wireless communication device to a pressure measurement from a pressure measuring device attached to a needle stem on said tire.